CONSTRUCTION PERMIT
and MINOR SOURCE OPERATING PERMIT
OFFICE OF AIR QUALITY

Nucor Fastener
6730 County Road 60
Saint Joe, Indiana 46785

(herein known as the Permittee) is hereby authorized to construct and operate subject to the conditions contained herein, the emission units described in Section A (Source Summary) of this permit.

This permit is issued to the above mentioned company under the provisions of 326 IAC 2-1.1, 326 IAC 2-5.1, 326 IAC 2-6.1 and 40 CFR 52.780, with conditions listed on the attached pages.

Operation Permit No.: MSOP 033-11203-00038	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Quality	Issuance Date: April 4, 2000

Notice Only Change: 033-13694-00038	Pages Affected: 4, 5, 17, 19, 20, 22, 24
Issued by: Paul Dubenetzky, Branch Chief Office of Air Quality *Original signed by Paul Dubenetzky*	Issuance Date: April 25, 2001

SECTION A SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1 through A.2 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-5.1-3(c)] [326 IAC 2-6.1-4(a)]

The Permittee owns and operates a stationary nut and bolt manufacturing source.

Authorized Individual:	John Harden
Source Address:	6730 County Road 60, Saint Joe, Indiana 46785
Mailing Address:	P.O. Box 6100, Saint Joe, Indiana 46785
Phone Number:	(219) 337-1600
SIC Code:	3452
County Location:	Dekalb
County Status:	Attainment for all criteria pollutants
Source Status:	Minor Source Operating Permit Minor Source, under PSD Rules Minor Source, Section 112 of the Clean Air Act

A.2 Emissions units and Pollution Control Equipment Summary

This stationary source is approved to construct and operate the following emissions units and pollution control devices:

(a) Seventy-three (73) natural gas fired space heaters, total capacity: 8.3 million British thermal units per hour.

(b) Nine (9) natural gas fired air makeup units, total capacity: 56.2 million British thermal units per hour.

(c) One (1) natural gas fired boiler, constructed in 1994, using liquid propane gas as a backup fuel, capacity: 9.807 million British thermal units per hour.

(d) Four (4) natural gas fired annealing furnaces, total capacity: 27.6 million British thermal unit per hour.

(e) Three (3) natural gas fired annealing furnaces, capacity: 5.94 million British thermal units per hour, each, and 113,400 pounds of metal per batch, each.

(f) One (1) natural gas fired heat treat furnace, including one (1) belt furnace, one (1) hardening furnace and one (1) draw furnace, total heat input capacity: 18.35 million British thermal units per hour.

(g) One (1) natural gas fired heat treat furnace, including one (1) belt furnace, one (1) hardening furnace and one (1) draw furnace, total heat input capacity: 7.70 million British thermal units per hour.

(h) Two (2) natural gas fired heat treat furnaces, including two (2) belt furnaces, two (2) hardening furnaces and two (2) draw furnaces, total heat input capacity: 18.1 million British thermal units per hour.

(i) One (1) natural gas fired heat treat furnace, including one (1) batch furnace, one (1) hardening furnace and two (2) draw furnaces, total heat input capacity: 7.72 million British thermal units per hour.

(j) One (1) natural gas fired heat treat furnace, including one (1) batch furnace, two (2) hardening furnaces, replaced 6 (six) new low NOx burners (each burner rated at 0.75 MMBtu/hr) in one of the hardening furnaces, five (5) draw furnaces and two (2) washers, total heat input capacity: 7.85 Million Million British thermal units per hour.

(k) One (1) sulfuric acid pickling facility, exhausting to stack EP63, with an acid recovery system, capacity: 32.4 tons of steel per hour and 175,000 tons of steel per year.

(l) Twenty-one (21) bolt making machines, including coolant and oil lubricate usage, with bolt making machines emissions controlled by three (3) wet venturi scrubbers, total capacity: 27.2 tons of steel per hour.

(m) Six (6) nut forming machines, including coolant usage, total capacity: 1.27 tons of steel per hour, 30.4 tons of steel per day and 10,000 tons of steel per year.

(n) One (1) tumble blaster, EP61, exhausting to a baghouse, capacity: 1.27 tons of steel per hour, 30.4 tons of steel per day and 10,000 tons of steel per year.

(o) Eight (8) bolt and nut formers, using lubricant and cooling oil, equipped with oil mist collection systems, total usage: 37,500 gallons of oil per year. .

(p) One (1) natural gas fired boiler, identified as EP54, capacity: 8.37 million British thermal units per hour.

(q) Four (4) hardening and tempering furnace pairs, identified as EP64 through EP67, using pre-wash, quench oil and rust preventative, capacity: 5.8 million British thermal units per hour, each pair.

(r) Three (3) endothermic gas generators, identified as EP68, capacity: 0.3 million British thermal units per hour, each.

(s) One (1) wash line, using a maximum of 1,733 gallons of rust preventative per year.

(t) One (1) wax line, using a maximum of 2,250 gallons of rust preventative per year.

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

(a) Seventy-three (73) natural gas fired space heaters, total capacity: 8.3 million British thermal units per hour.

(b) Nine (9) natural gas fired air makeup units, total capacity: 56.2 million British thermal units per hour.

(c) One (1) natural gas fired boiler, constructed in 1994, using liquid propane gas as a backup fuel, capacity: 9.807 million British thermal units per hour.

(d) Four (4) natural gas fired annealing furnaces, total capacity: 27.6 million British thermal unit per hour.

(e) Three (3) natural gas fired annealing furnaces, capacity: 5.94 million British thermal units per hour, each, and 113,400 pounds of metal per batch, each.

(f) One (1) natural gas fired heat treat furnace, including one (1) belt furnace, one (1) hardening furnace and one (1) draw furnace, total heat input capacity: 18.35 million British thermal units per hour.

(g) One (1) natural gas fired heat treat furnace, including one (1) belt furnace, one (1) hardening furnace and one (1) draw furnace, total heat input capacity: 7.70 million British thermal units per hour.

(h) Two (2) natural gas fired heat treat furnaces, including two (2) belt furnaces, two (2) hardening furnaces and two (2) draw furnaces, total heat input capacity: 18.1 million British thermal units per hour.

(i) One (1) natural gas fired heat treat furnace, including one (1) batch furnace, one (1) hardening furnace and two (2) draw furnaces, total heat input capacity: 7.72 million British thermal units per hour.

(j) One (1) natural gas fired heat treat furnace, including one (1) batch furnace, two (2) hardening furnaces, replaced 6(six) new low Nox burners (each burner rated at 0.75 MMBtu/hr) in one of the hardening furnaces**,** five (5) draw furnaces and two (2) washers, total heat input capacity: 7.85 Million British thermal units per hour.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-6.1-5(1)]

D.1.1 Particulate Matter (PM) [326 IAC 6-2-4]

(a) The two (2) boilers, constructed in 1994, shall be limited to PM emissions of 0.55 pound per million British thermal unit. This limitation was computed using the following equation:

$$Pt = 1.09/Q^{0.26}$$

where:

Pt = Pounds of particulate matter emitted per million British thermal units (lb/MMBtu) heat input

SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

(k) One (1) sulfuric acid pickling facility, exhausting to stack EP63, with an acid recovery system, capacity: 32.4 tons of steel per hour and 175,000 tons of steel per year.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-6.1-5(1)]

D.2.1 Particulate Matter (PM) [326 IAC 6-3-2]

(a) Pursuant to 326 IAC 6-3 (Process Operations), the allowable PM emission rate from the sulfuric acid pickling shall not exceed 40.6 pounds per hour when operating at a process weight rate of 32.4 tons per hour.

The pounds per hour limitation was calculated with the following equation:

Interpolation and extrapolation of the data for the process weight rate in excess of 60,000 pounds per hour shall be accomplished by use of the equation:

$E = 55.0\ P^{0.11} - 40$ Where E = rate of emission in pounds per hour; and
P = process weight rate in tons per hour

(b) The requirement from Condition 2 of Exemption 033-10353-00038, issued on January 11, 1999, requiring that, pursuant to 326 IAC 6-3 (Process Operations), the operation of the sulfuric acid pickling facility shall be limited to 30.5 pounds per hour, and inspections and preventive measures shall be performed as prescribed in the Preventive Maintenance Plan, is not applicable because, although the requirements of 326 IAC 6-3 are applicable to the sulfuric acid pickling facility, the allowable PM emissions were computed using a process weight rate obtained by dividing the annual process weight rate by 8,760 hours per year. In actuality, the hourly process weight rate can be higher than that, and the allowable emissions in (a) of this condition are computed using the maximum hourly process weight rate. A Preventive Maintenance Plan is not required for this facility because the control device is not required by a rule and the actual potential emissions are less than 25 tons per year.

D.2.2 Minor Source Operating Permit [326 IAC 2-6]

The requirement from Exemption 033-10353-00038, issued on January 11, 1999, requiring that any change or modification which may increase the particulate matter to 5 tons per year or more from the equipment covered in the exemption (sulfuric acid pickling and three (3) annealing furnaces) must be approved by the Office of Air Quality before such change may occur, is not applicable because this is a Minor Source Operating Permit issued under 326 IAC 2-6.1.

Compliance Determination Requirements [326 IAC 2-1.1-11]

D.2.3 Testing Requirements [326 IAC 2-1.1-11]

The Permittee is not required to test this emissions unit by this permit. However, IDEM may require compliance testing when necessary to determine if the emissions unit is in compliance. If testing is required by IDEM, compliance with the PM limit specified in Condition D.2.1 shall be determined by a performance test conducted in accordance with Section C - Performance Testing.

SECTION D.3 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

(l) Twenty-one (21) bolt making machines, including coolant and oil lubricate usage, with bolt making machines emissions controlled by three (3) wet venturi scrubbers, total capacity: 27.2 tons of steel per hour.

(m) Six (6) nut forming machines, including coolant usage, total capacity: 1.27 tons of steel per hour, 30.4 tons of steel per day and 10,000 tons of steel per year.

(n) One (1) tumble blaster, EP61, exhausting to a baghouse, capacity: 1.27 tons of steel per hour, 30.4 tons of steel per day and 10,000 tons of steel per year.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-6.1-5(1)]

D.3.1 Particulate Matter (PM) [326 IAC 6-3-2]

(a) Pursuant to 326 IAC 6-3 (Process Operations), the allowable PM emission rate from the twenty-one (21) bolt making machines shall not exceed 37.5 pounds per hour when operating at a process weight rate of 27.2 tons per hour.

(b) Pursuant to 326 IAC 6-3 (Process Operations), the allowable PM emission rate from the six (6) nut forming machines shall not exceed 4.81 pounds per hour when operating at a process weight rate of 1.27 tons per hour.

(c) Pursuant to 326 IAC 6-3 (Process Operations), the allowable PM emission rate from the tumble blaster shall not exceed 4.81 pounds per hour when operating at a process weight rate of 1.27 tons per hour.

The pounds per hour limitations were calculated with the following equation:

Interpolation and extrapolation of the data for the process weight rate up to 60,000 pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour; and
P = process weight rate in tons per hour

(d) The requirement from Condition 5 of CP 033-2787-00038, issued on January 28, 1994, requiring that particulate matter emissions will be considered in compliance with 326 IAC 6-3 provided that visible emissions do not exceed 10% opacity and PM emissions shall be limited to 0.057 grains per actual cubic feet (gr/acf) with the actual gas flow rate of 59,880 actual cubic feet per minute (acfm) for the baghouse collector for the bolt shotblasting operation, is not applicable because, as a result of some shotblasting being removed, the control device is not required in order for the tumble blasting to comply with 326 IAC 6-3-2.

D.3.2 Minor Source Operating Permit [326 IAC 2-6]

The requirement from Exemption 033-3780-00022, issued on July 26, 1994, requiring that any change or modification which may increase the allowable emissions to more than 15 pounds per day of VOC and 25 pounds per day of particulate matter from the equipment covered under the letter (six (6) nut forming machines) must be approved by the Office of Air Quality before such change may occur, is not applicable because this is a Minor Source Operating Permit issued under 326 IAC 2-6.1.

SECTION D.4 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

(o) Eight (8) bolt and nut formers, using lubricant and cooling oil, equipped with oil mist collection systems, usage: 37,500 gallons of oil per year.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-6.1-5(1)]

D.4.1 Particulate Matter Limitation (PM) [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3 (Process Operations), the allowable PM emission rate from the eight (8) bolt and nut formers shall not exceed 12.5 pounds per hour when operating at a process weight rate of 5.25 tons per hour.

The pounds per hour limitation was calculated with the following equation:

Interpolation and extrapolation of the data for the process weight rate up to 60,000 pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour; and
P = process weight rate in tons per hour

D.4.2 Preventive Maintenance Plan [326 IAC 1-6-3]

A Preventive Maintenance Plan, in accordance with Section C - Preventive Maintenance Plan, of this permit, is required for these emissions units and their control devices.

Compliance Determination Requirements [326 IAC 2-1.1-11]

D.4.3 Testing Requirements [326 IAC 2-1.1-11]

The Permittee is not required to test this emissions unit by this permit. However, IDEM may require compliance testing when necessary to determine if the emissions unit is in compliance. If testing is required by IDEM, compliance with the PM limit specified in Condition D.4.1 shall be determined by a performance test conducted in accordance with Section C - Performance Testing.

D.4.4 Particulate Matter (PM)

The oil mist collection systems for PM control shall be in operation at all times when the nut and bolt forming line is in operation.

Compliance Monitoring Requirements [326 IAC 2-5.1-3(e)(2)] [326 IAC 2-6.1-5(a)(2)]

D.4.5 Visible Emissions Notations

(a) Daily visible emission notations of the eight (8) nut and bolt formers' stack exhaust shall be performed during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

SECTION D.5 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

(p) One (1) natural gas fired boiler, identified as EP54, capacity: 8.37 million British thermal units per hour.

(q) Four (4) hardening and tempering furnace pairs, identified as EP64 through EP67, using pre-wash, quench oil and rust preventative, capacity: 5.8 million British thermal units per hour, each pair.

(r) Three (3) endothermic gas generators, identified as EP68, capacity: 0.3 million British thermal units per hour, each.

(s) One (1) wash line, using a maximum of 1,733 gallons of rust preventative per year.

(t) One (1) wax line, using a maximum of 2,250 gallons of rust preventative per year.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-6.1-5(1)]

D.5.1 Particulate Matter (PM) [326 IAC 6-2-4]

The one (1) boiler shall be limited to PM emissions of 0.48 pound per million British thermal unit. This limitation was computed using the following equation:

$$Pt = 1.09/Q^{0.26}$$

where:

Pt = Pounds of particulate matter emitted per million British thermal units (lb/MMBtu) heat input

Q = Total source maximum operating capacity rating in million British thermal units per hour (MMBtu/hr) heat input. The maximum operating capacity rating is defined as the maximum capacity at which the facility is operated or the nameplate capacity, which-ever is specified in the facility's permit application, except when some lower capacity is contained in the facility's operation permit; in which case, the capacity specified in the operation permit shall be used.

Compliance Determination Requirement [326 IAC 2-1.1-11]

D.5.2 Testing Requirements [326 IAC 2-1.1-11]

The Permittee is not required to test these emissions units by this permit. However, IDEM may require compliance testing when necessary to determine if the emissions units are in compliance. If testing is required by IDEM, compliance with the PM limit specified in Condition D.5.1 shall be determined by a performance test conducted in accordance with Section C - Performance Testing.

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for Minor Source Operating Permit (MSOP)

Source Name:	**Nucor Fastener**
Source Location:	**6730 County Road 60, Saint Joe, Indiana 46785**
County:	**Dekalb**
SIC Code:	**3452**
Operation Permit No.:	**MSOP 033-13694-00038**
Permit Reviewer:	**Mohammad Z Khan**

The Office of Air Quality (OAQ) has reviewed an application from Nucor Fastener relating to the operation of a nut and bolt manufacturing.

Permitted Emission Units and Pollution Control Equipment

The source consists of the following permitted emission units and pollution control devices:

(a) Seventy-three (73) natural gas fired space heaters, total capacity: 8.3 million British thermal units per hour.

(b) Nine (9) natural gas fired air makeup units, total capacity: 56.2 million British thermal units per hour.

(c) One (1) natural gas fired boiler, constructed in 1994, using liquid propane gas as a backup fuel, capacity: 9.807 million British thermal units per hour.

(d) Four (4) natural gas fired annealing furnaces, total capacity: 27.6 million British thermal unit per hour.

(e) Three (3) natural gas fired annealing furnaces, capacity: 5.94 million British thermal units per hour each, and 113,400 pounds of metal per batch each.

(f) One (1) natural gas fired heat treat furnace, including one (1) belt furnace, one (1) hardening furnace and one (1) draw furnace, total heat input capacity: 18.35 million British thermal units per hour.

(g) One (1) natural gas fired heat treat furnace, including one (1) belt furnace, one (1) hardening furnace and one (1) draw furnace, total heat input capacity: 7.70 million British thermal units per hour.

(h) Two (2) natural gas fired heat treat furnaces, including two (2) belt furnaces, two (2) hardening furnaces and two (2) draw furnaces, total heat input capacity: 18.1 million British thermal units per hour.

(i) One (1) natural gas fired heat treat furnace, including one (1) batch furnace, one (1) hardening furnace and two (2) draw furnaces, total heat input capacity: 7.72 million British thermal units per hour.

(j) One (1) natural gas fired heat treat furnace, including one (1) batch furnace, two (2) hardening furnaces, five (5) draw furnaces and two (2) washers, total heat input capacity: 7.85 million British thermal units per hour.

(k) One (1) sulfuric acid pickling facility, exhausting to stack EP62, with an acid recovery system, capacity: 32.4 tons of steel per hour and 175,000 tons of steel per year.

(l) Twenty-one (21) bolt making machines, including coolant and oil lubricate usage, with bolt making machines emissions controlled by three (3) wet venturi scrubbers, total capacity: 27.2 tons of steel per hour.

(m) Six (6) nut forming machines, including coolant usage, total capacity: 1.27 tons of steel per hour, 30.4 tons of steel per day and 10,000 tons of steel per year.

(n) One (1) tumble blaster, EP 61, exhausting to a baghouse, capacity: 1.27 tons of steel per hour, 30.4 tons of steel per day and 10,000 tons of steel per year.

(o) Eight (8) bolt and nut formers, using lubricant and cooling oil, equipped with oil mist collection systems, total usage: 37,500 gallons of oil per year. .

(p) One (1) natural gas fired boiler, identified as EP54, capacity: 8.37 million British thermal units per hour.

(q) Four (4) hardening and tempering furnace pairs, identified as EP64 through EP67, using pre-wash, quench oil and rust preventative, capacity: 5.8 million British thermal units per hour, each pair.

(r) Three (3) endothermic gas generators, identified as EP68, capacity: 0.3 million British thermal units per hour, each.

(s) One (1) wash line, using a maximum of 1,733 gallons of rust preventative per year.

(t) One (1) wax line, using a maximum of 2,250 gallons of rust preventative per year.

Existing Approvals

The source has been operating under previous approvals including, but not limited to, the following:

(a) CP 033-2787-00038, issued on January 28, 1994;

(b) Addendum to CP 033-2787, issued on February 18, 1994;

(c) Exemption 033-3780-00022, issued on July 26, 1994;

(d) Exemption 033-10353-00038, issued on January 11, 1999;

(e) Amendment to CP 033-2787-00038, issued on January 22, 1999;

(f) Registration CP 033-10644-00038, issued on April 6, 1999.

(g) MSOP 033-11203-00038, issued on April 4, 2000.

All conditions from previous approvals were incorporated into this permit except the following:

(a) CP 033-2787-00038, issued on January 28, 1994

Condition 4: That particulate matter emissions from the heating equipment shall comply with 326 IAC 6-2 (Particulate Emission Limitations for Sources of Indirect Heating). Particulate matter emissions from all the combustion equipment shall be limited to 0.31 pounds per million British thermal unit heat input, pursuant to that rule.

Reason not incorporated: The requirements of 326 IAC 6-2 are only applicable to the boilers, not to the direct heating units at this source. The 326 IAC 6-2 limitations for the boilers are computed in this document and are included in the permit.

(b) CP 033-2787-00038, issued on January 28, 1994

Condition 5: That particulate matter emissions will be considered in compliance with 326 IAC 6-3 provided that visible emissions do not exceed 10% opacity. PM emissions shall be limited to 0.057 grains per actual cubic feet (gr/acf) with the actual gas flow rate of 59,880 actual cubic feet per minute (acfm) for the baghouse collector for the bolt shotblasting operation.

Reason not incorporated: As a result of some shotblasting being removed from this source, the control device is not required in order for the tumble blasting to comply with 326 IAC 6-3-2. Therefore, the limitations from Condition 5 of CP 033-2787-00038, issued on January 28, 1994 are not necessary.

(c) Exemption 033-3780-00022, issued on July 26, 1994

Any change or modification which may increase the allowable emissions to more than 15 pounds per day of VOC and 25 pounds per day of particulate matter from the equipment covered under this letter must be approved by the Office of Air Management before such change may occur.

Reason not incorporated: This is not required in a Minor Source Operating Permit under 326 IAC 2-6.1.

(d) Exemption 033-10353-00038, issued on January 11, 1999
Condition 2: Pursuant to 326 IAC 6-3 (Process Operations); (a) The operation of the sulfuric acid pickling facility shall be limited to 30.5 pounds per hour, and (b) Additional inspections and preventive measures shall be performed as prescribed in the Preventive Maintenance Plan.

Reason not incorporated: The requirements of 326 IAC 6-3 are applicable to the sulfuric acid pickling facility. However, the allowable PM emissions were computed using a process weight rate obtained by dividing the annual process weight rate by 8,760 hours per year. In actuality, the hourly process weight rate can be higher than that, and the allowable emissions in this permit are computed using the maximum hourly process weight rate. A Preventive Maintenance Plan is not required for this facility because the control device is not required by a rule and the actual potential emissions are less than 25 tons per year.

(e) Exemption 033-10353-00038, issued on January 11, 1999
Any change or modification which may increase the particulate matter to 5 tons per year or more from the equipment covered in this exemption must be approved by the Office of Air Management before such change may occur.

Reason not incorporated: This is not required in a Minor Source Operating Permit under 326 IAC 2-6.1.

(f) Registration CP 033-10644-00038, issued on April 6, 1999
Any change or modification which may increase the potential nitrogen oxide emissions to 25 tons per year or more from the equipment covered in this registration must be approved by the Office of Air Management before such change may occur.

Reason not incorporated: This is not required in a Minor Source Operating Permit under 326 IAC 2-6.1.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (EF)
EP54	Boiler	45	1.5	2,620	350
EP64	Hardening and Tempering Furnaces	45	1.0	1,500	500
EP65	Hardening and Tempering Furnaces	45	1.0	1,500	500
EP66	Hardening and Tempering Furnaces	45	1.0	1,500	500
EP67	Hardening and Tempering Furnaces	45	1.0	1,500	500
EP68	Endothermic Generators	45	1.67	1,200	500

Enforcement Issue

There are no enforcement actions pending.

Recommendation

The staff recommends to the Commissioner that the operation be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application submitted by the applicant.

Emission Calculations

See Appendix A of this document for detailed emissions calculations (19 pages).

Potential To Emit

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air

pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency."

Pollutant	**Potential To Emit** (tons/year)
PM	65.79
PM -10	70.88
SO_2	2.86
VOC	44.40
CO	77.57
NO_X	95.15
HAPs	**Potential To Emit** (tons/year)
Combination of HAPs	3.33
TOTAL	3.33

(a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of each criteria air pollutant is less than 100 tons per year. Therefore, the source is not subject to the provisions of 326 IAC 2-7.

(b) The potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP is less than ten (10) tons per year and the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination HAPs is less than twenty-five (25) tons per year. Therefore, the source is not subject to the provisions of 326 IAC 2-7.

(c) The potentials to emit (as defined in the Indiana Rule) of NO_X, VOC, PM and PM-10 are equal to or greater than 25 tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-6.1.

(d) Fugitive Emissions
Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD applicability.

Potential to Emit

The table below summarizes the total potential to emit, reflecting all limits, of the significant emission units.

	Potential to Emit (tons/year)						
Process/facility	PM	PM_{10}	SO_2	VOC	CO	NO_X	HAPS
Seventy-three (73) space heaters, nine (9) air makeup units, seven (7) annealing furnaces, two (2) boilers, six (6) heat treat furnaces	1.65	6.00	2.27	18.3	66.4	82.2	< 2.0

	Potential to Emit (tons/year)						
Process/facility	PM	PM_{10}	SO_2	VOC	CO	NO_X	HAPS
Sulfuric acid pickling	3.46	3.46	3.46	0.00	0.00	0.00	0.00
Twenty-one (21) bolt making machines and six (6) nut forming machines	8.14	8.14	0.00	19.9	0.00	0.00	0.00
One (1) tumble blaster	4.91	4.91	0.00	0.00	0.00	0.00	0.00
One (1) boiler, four (4) hardening and tempering furnace pairs, three (3) endothermic generators, wax line, wash line	0.361	0.962	0.085	2.87	12.0	16.2	< 2.0
Eight (8) bolt and nut formers	4.74	4.74	0.00	0.00	0.00	0.00	0.00
Total Emissions	23.3	28.2	5.82	41.1	78.4	98.4	3.88

The applicant has requested a Federally Enforceable Condition requiring that the oil mist collection systems controlling emissions from the eight (8) proposed bolt and nut formers be operated at all times when the bolt and nut forming line is in operation. This will make the potential to emit PM and PM_{10} 4.74 tons per year. Although there are no rules requiring that the oil mist collection systems be operated at all times, a condition will be included in the permit along with requirements for a Preventive Maintenance Plan and Compliance Monitoring.

County Attainment Status

The source is located in Dekalb County.

Pollutant	Status
PM-10	Attainment
SO_2	Attainment
NO_2	Attainment
Ozone	Attainment
CO	Attainment
Lead	Attainment

(a) Volatile organic compounds (VOC) and oxides of nitrogen (NO_x) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Dekalb County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO_X emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(b) Dekalb County has been classified as attainment or unclassifiable for PM, PM-10,SO 2, Nox, CO and Lead. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

Source Status

Existing Source PSD, Part 70 or FESOP Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity and/ or as otherwise limited):

Pollutant	Emissions (ton/yr)
PM	18.2
PM_{10}	22.5
SO_2	2.86
VOC	44.40
CO	77.57
NO_X	95.15

(a) This existing source is not a major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not in one of the 28 listed source categories.

(b) These emissions were based on the existing facility emissions from the Limited Potential to Emit table in this document. There no emissions on file at the OAQ for this source.

Proposed Modification

PTE from the proposed modification (based on 8,760 hours of operation per year at rated capacity including enforceable emission control and production limit, where applicable):

Pollutant	PM (ton/yr)	PM_{10} (ton/yr)	SO_2 (ton/yr)	VOC (ton/yr)	CO (ton/yr)	NO_X (ton/yr)
Proposed Modification	0.00	0.10	0.00	1.40	1.20	0.10
PSD Threshold Level	250	250	250	250	250	250

This modification to an existing minor stationary source is not major, because the emission increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This existing source, including the emissions from the new proposed facilities in this permit, is still not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

(a) each criteria pollutant is less than 100 tons per year,

(b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and

(c) any combination of HAPS is less than 25 tons per year.

This status is based on all the air approvals issued to the source. This status has been verified by the OAQ inspector assigned to the source.

Federal Rule Applicability

(a) The two (2) boilers, rated at 9.807 million British thermal units per hour, 8.37 million British thermal units per hour, are not subject to the New Source Performance Standards, 326 IAC 12, 40 CFR 60.40, 40 CFR 60.40a, 40 CFR 60.40b and 40 CFR 60.40c, Subparts D, Da, Db and Dc because they each have a capacity less than 10 million British thermal units per hour.

(b) There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this source.

(c) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 326 IAC 20; 40 CFR Part 61 and 40 CFR Part 63) applicable to this source.

State Rule Applicability - Entire Source

326 IAC 2-6 (Emission Reporting)

This source is located in Dekalb County and the potentials to emit PM, PM-10, VOC and NO_X are less than one hundred (100) tons per year, therefore, 326 IAC 2-6 does not apply.

326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemption Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

State Rule Applicability - Individual Facilities

326 IAC 6-2-4 (Particulate Emissions Limitations for Facilities Constructed after September 21, 1983)

The two (2) boilers, all constructed after September 21, 1983, must comply with the requirements of 326 IAC 6-2-4. The emission limitations are based on the following equation is given in 326 IAC 6-2-4:

$$Pt = 1.09/Q^{0.26}$$

where:

Pt = Pounds of particulate matter emitted per million British thermal units (lb/MMBtu) heat input

Q = Total source maximum operating capacity rating in million British thermal units per hour (MMBtu/hr) heat input. The maximum operating capacity rating is defined as the maximum capacity at which the facility is operated or the nameplate capacity, whichever is specified in the facility's permit application, except when some lower capacity is contained in the facility's operation permit; in which case, the capacity specified in the operation permit shall be used.

(a) The heat input capacity boiler constructed in 1994 is 9.807 million British thermal units per hour.

$Pt = 1.09/(14.0)^{0.26} = 0.55$ lb/MMBtu heat input

Based on Appendix A, the maximum potential PM emission rates occur when operating on propane and are:

0.188 ton/yr × (2000 lbs/ton / 8760 hrs/yr) = 0.043 lb/hr
(0.043 lb/hr / 9.807 MMBtu/hr) = 0.004 lb PM per MMBtu)
Therefore, the boiler, constructed in 1994, will comply with this rule.

(b) The heat input capacity of the one (1) proposed boiler is 8.37 million British thermal units per hour. The total source operating capacity when this boiler is installed will be 22.4 million British thermal units per hour.

$Pt = 1.09/(22.4)^{0.26} = 0.48$ lb/MMBtu heat input

Based on Appendix A, the maximum potential PM emission rate occurs when operating on propane and is:

0.160 ton/yr × (2000 lbs/ton / 8760 hrs/yr) = 0.036 lb/hr
(0.036 lb/hr / 8.37 MMBtu/hr) = 0.004 lb PM per MMBtu
Therefore, the one (1) proposed boiler will comply with this rule.

326 IAC 6-3-2 (Process Operations)

(a) The particulate matter (PM) from the sulfuric acid pickling shall be limited to 40.6 pounds per hour when operating at a process weight rate of 32.4 tons per hour. Since the potential to emit PM is 0.79 pounds per hour, the sulfuric acid pickling facility will comply with this rule. This limitation was based on the following equation:

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 55.0 P^{0.11} - 40$ where E = rate of emission in pounds per hour and P = process weight rate in tons per hour

(b) The particulate matter (PM) from the twenty-one (21) bolt making machines shall be limited to 37.5 pounds per hour when operating at a process weight rate of 27.2 tons per hour. Since the potential to emit PM is 0.899 pound per hour, the twenty-one (21) bolt making machines will comply with this rule. The limitation was based on the following equation:

Interpolation and extrapolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10 P^{0.67}$ where E = rate of emission in pounds per hour and P = process weight rate in tons per hour

(c) The particulate matter (PM) from the six (6) nut forming machines shall be limited to 4.81 pounds per hour when operating at a process weight rate of 1.27 tons per hour. Since the potential to emit PM is 0.959 pound per hour, the six (6) nut forming machines will comply with this rule. The limitation was based on the equation in (b).

(d) The particulate matter (PM) from the tumble blaster shall be limited to 4.81 pounds per hour when operating at a process weight rate of 1.27 tons per hour. Since the potential to emit PM is 1.12 pounds per hour, the tumble blaster will comply with this rule. The limitation was

based on the equation in (b).

(e) The particulate matter (PM) from the eight (8) proposed nut and bolt formers shall be limited to 12.5 pounds per hour when operating at a process weight rate of 5.25 tons per hour. Since the potential to emit PM is 10.8 pounds per hour, the eight (8) nut and bolt formers will comply with this rule. This limitation was based on the equation in (b).

326 IAC 7 (Sulfur Dioxide Emission Limitations)

Since the potential to emit SO_2 is less than 25 tons per year, the requirements of 326 IAC 7 are not applicable.

326 IAC 8-1-6 (New Facilities; General Reduction Requirements)

Since the potential to emit VOC from each facility is less than 25 tons per year, the requirements of 326 IAC 8-1-6 are not applicable.

326 IAC 9 (Carbon Monoxide Emission Limitations)

Since this source does not have petroleum refining emissions, ferrous metal smelters or refuse incineration or burning, the requirements of 326 IAC 9 are not applicable to this source.

326 IAC 10 (Nitrogen Oxides Rules)

The requirements of 326 IAC 10 are not applicable to this source, because this source is not located in Clark or Floyd Counties.

Air Toxic Emissions

Indiana presently requests applicants to provide information on emissions of the 188 hazardous air pollutants (HAPs) set out in the Clean Air Act Amendments of 1990. These pollutants are either carcinogenic or otherwise considered toxic and are commonly used by industries. They are listed as air toxics on the Office of Air Management (OAM) Construction Permit Application Form Y.

(a) This source will emit levels of air toxics less than those which constitute a major source according to Section 112 of the 1990 Clean Air Act Amendments.

(b) See attached calculations for detailed air toxic calculations. (Appendix A)

Conclusion

The operation of this nut and bolt manufacturing source shall be subject to the conditions of the attached **Minor Source Operating Permit 033-13694-00038.**

Appendix A

Nucor Fastener
MSOP: 033-13694-00038
Emissions Summary
Reviewer: Mohammad Z Khan
Date: March 14, 2001

(A): SUMMARY OF EMISSIONS (tons/yr):

1. Retire an existing boiler, rated capacity 4.2 MMBtu/hr.
2. Change the heat input rate of a hardening furnace from 4.55 MMBtu/hr to 7.85 MMBtu/hr by changing 6 (six) burners (each burner rated at 0.75 MMBtu/hr).

Description	**PM**	**PM-10**	**SO_2**	**VOC**	**CO**	**NOx**
As per MSOP: 033-11203-00038 Issued on April 4, 2000. (Data from tsd)	65.9	71.00	3.42	44.50	78.30	98.40
Retire of an existing boiler, rated Capacity 4.20 MMBtu/hr. (PTE decreases)	**(-) 0.115**	**(-) 0.22**	**(-) 0.56**	**(-) 0.202**	**(-) 1.932**	**(-) 4.65**
Emissions increases due to replacing 6 (six) new burners in one of the hardening furnace (change the heat input from 4.55 MMBtu/hr to 7.85 MMBtu/hr)	0.00	0.10	0.00	0.10	1.20	1.40
TOTAL	**65.79**	**70.88**	**2.86**	**44.40**	**77.57**	**95.15**